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ABSTRACT

Before presenting a model for physician training, this article reports development of a portable training packet for physicians in the application of social learning theory principles to the treatment of handicapped children and their families. A brief review of the recent literature underscores the need for physician training in behavioral approaches to treatment. The article then discusses the favorable outcomes of pilot research efforts, including a description of how these results are now being used to direct ongoing program development. It details plans for the Physician Impact Project, which involves the evaluation of a behavioral training model as applied to three groups of residents in Family Practice Medicine. The model focuses upon the development of socialization and self-management skills among children with developmental or emotional/ behavioral disorders. Formative evaluation throughout the course of the project is designed to direct the development of a demonstrably effective instructional model, which will be packaged and disseminated to other medical training sites. In closing, the paper addresses the relative merits of the project's training approach and the potential benefits to be realized from its wide dispersion and utilization. (Author)

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THE PHYSICIAN IMPACT PROJECT

New Ideas in the Behavioral Science Training of Physicians*

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Abstract

This paper is a report of current research on the development of a portable training packet for physicians in the application of social learning theory principles to the treatment of handicapped children and their families. A brief review of the recent literature underscores the need for physician training in behavioral approaches to treatment. The favorable outcomes of pilot research efforts are then discussed, including a description of how these results are now being used to direct ongoing program development.

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***Requests for more detailed descriptions of the Project's training and evaluative materials should be directed to the authors at Edgefield Lodge, 2408 S.W. Halsey, Troutdale, Oregon 97060.

Plans for the Physician Impact Project are detailed, involving the evaluation of a behavioral training model as applied to three groups of Residents in Family Practice Medicine. The content of this training focuses upon the development of socialization and self-management skills among children with developmental or emotional/behavioral disorders. Formative evaluation throughout the course of the Project will direct the development of a demonstrably effective instructional model, which will be packaged and disseminated to other medical training sites. In closing, the paper addresses the relative merits of the Project's training approach and the potential benefits to be realized from its wide dispersion and utilization.

Recently, there has been a new social awareness regarding the unmet needs of handicapped children, including those afflicted by developmental and emotional/behavioral disabilities. Public concern and corresponding legislation (e.g., [1]) have sensitized increasing numbers of professionals to the rights of all handicapped children--among these, the right to receive essential diagnostic, preventive, and remedial treatment services.

The far-reaching implications of this social declaration call two evident needs into focus: (a) the availability of effective intervention technologies; and (b) trained personnel to implement treatment activities. In regard to point (a), it must first be considered that the population considered as "handicapped children" poses a great diversity in special needs (cf. [2]; [3]; [4]). However, certain deficits in socialization and self-management skills are commonly experienced by children inflicted by any handicapping condition. Fortunately, within the past decade, clinical applications of social learning theory ("behavior therapy"; "behavior modification") have been documented as effective for developing these basic skills under a vast range of circumstances (cf. [5]; [6]; [7]; [8]). Recently, Rimm and Masters [9] reviewed an extensive list of research

findings which support the efficacy of reinforcement techniques and contingency management procedures in the treatment of a great variety of behavioral deficits and excesses; the authors concluded that there will be an example of a successful procedure in the published literature for the treatment of just about any sort of problem.

While social learning technology has continued to prosper and become ever more sophisticated, attention has turned to point (b), above, the training of needed personnel. In this regard, concerned professionals have often emphasized the need for the training of support personnel to multiply their efforts (cf. [10]). The paraprofessional personnel of many institutional settings have profited from behavioral training (e.g., [11]; [12]; [13]; [14]), and a thrust consistent with the evolving principle of aiding the handicapped in the "least restrictive environment" [4] has been supportive of the training of community-based paraprofessionals (cf.[15]). The behavioral training of community agents has primarily focused upon teachers (e.g., [16]; [17]; [18]; [19]) and the parents of handicapped children (see extensive review by Johnson & Katz [20]).

Although great gains have been made in preparing behaviorally trained personnel to work with handicapped children, the vast scope of the current public mandate to provide appropriate opportunities to all handicapped youngsters dictates the need for additional, innovative

training programs. In construing the nature of manifest personnel needs, it is the premise of this paper that a potentially significant resource has been overlooked: the children's family physicians. It is to these particular helping persons that most parents turn most often for professional advice when concerned with their child's growth and development (cf. [21]). In fact, the expectation that physicians be prepared to deal with non-medical aspects of childhood disabilities is clearly reflected in the contents of a physician's guide by Illingworth [22], which covers topics ranging from the "backward child" to "sleep refusal" and highlights "counseling the parents of handicapped children." Turtle [23], in a commentary on "preventive pediatrics," urges physicans to deal "with the behavioral difficulties of children at their very roots" (p. 489), by offering parents preventive education. Also, Katz and Zlutnick [24] have reviewed a variety of behavioral approaches proposed to medical practitioners for the treatment of such handicapping conditions as enureses, encopresis, anorexia nervosa, chronic vomiting, stuttering, migraine, asthma, and others. As Pattishall [25] has observed, "Most physicians in practice will readily admit that somewhere between fifty and eighty per cent of the patients who seek their help are suffering from an illness in which the emotions play a prominent etiological role, or, in

which there is *some type of behavioral overlay*"(p. 923, emphasis added).

It is apparent that both patient expectations and the realities of medical practice place physicians in a pivotal role for influencing the social and emotional development of the children in their care. Thus, the practitioner's role is ideally suited to the early identification, prevention, and correction of handicapping conditions through direct intervention with the child and parents or through informed referral to and support of other treatment resources. It is important to appreciate that while physicians currently do and shall continue to function in these ways, the training generally available to them in the efficacious uses of applied behavioral technology is minimal or nonexistent [26]; [27]. Given appropriate training, their contributions to creditable assistance for the handicapped may be invaluable.

Intense discussion and analysis of the many issues related to the behavioral training of physicians permeates the literature (e.g., [28]; [29]; [30]; [31]; [32]; [33]; [34]). Generally, these authors appear to support the need for an applied behavioral science curriculum in medical education, tuaght independently by behavioral specialists, and geared to the practical concerns of interns and residents, especially those in family medicine. Importantly, Brady [35] has reported that the interest of medical

students in acquiring such training is quite high. Some experimental programs along these lines have begun to be developed (e.g., [36]; [37]; [38]; [34]), and experiences with these have tended to support Stern's [39] conclusion that "medical students make good behavioral psychotherapists" and that "the subject is a worthwhile training experience which warrants inclusion in the curriculum" (p. 78).

Considerable work in the development of an effective training program for physicians remains to be accomplished. The efforts of the Physician Impact Project described in this paper are geared towards approaching this goal. Specifically, the Project seeks to experimentally examine and progressively refine a viable instructional model for the training of physicians to use behavioral approaches in their work with handicapped children and their families. Although potentially applicable to intervention with children who have diverse handicaps, the principle target group of children selected for this research consists of those with developmental and behavioral/emotional disorders. The interest is to develop a "curriculum kit" for dissemination to other medical training sites; the widespread implementation of a competency based and empirically validated training program for physicians could meaningfully augment the availability of personnel for meeting the needs of these children.

PILOT RESEARCH

Pilot research on the Project's training model was conducted during the 1976-77 academic year at the Family Practice Center of the University of Oregon Health Sciences Center in Portland, Oregon. Five subjects, all in their third year of residency training, participated in a series of 6 classroom seminars, each 1-1/2 hours long. Using both didactic and experiential methods, the Residents were trained in the application of social learning theory principles to the treatment of handicapped children and their families. Specifically, the training addressed competency acquisition by the physicians in each of the following areas: knowledge of social learning theory; behavioral assessment skills; and behavioral intervention skills. The content of the seminars focused upon the development of socialization and self-management skills for children with developmental and behavioral/emotional disorders.

Analysis of the impact of this training compared pre- and post-training scores by the subjects on measures which assessed their learning in the three identified competency areas. As reported in Table 1, the data reveal significant increases for the Residents in knowledge of theory and in development of behavioral assessment skills; a nonsignificant but positive trend was shown for the acquisition of intervention skills.

Insert Table 1 about here

TABLE 1

RESULTS OF THE PILOT STUDY

Pre-Test			Post-Test			
x	Mean	SD	x	Mean	SD	t
			THEORY			
18	11.0	4.7	24	19.6	5.1	2.48**
11			24			
14			20			
5			10[a]			
7			20			
			ASSESSMENT			
19	21.0	2.8	25	28.2	5.6	2.28*
26			37			
22			29			
18			20[a]			
20			30			
			INTERVENTION			
20	22.4	5.7	30	29.6	9.7	1.28[b]
32			37			
25			37			
15			11[a]			
20			33			

[a]This individual missed 33% of class instruction.

[b]This nonsignificant t-score ($p < .15$), when recalculated with the exclusion of the extreme low-scoring subject noted above, achieves significance: $t = 2.27$, $p < .05$.

*$p < .05$.

**$p < .025$.

Beyond signaling the potential utility of the Project's training approach for teaching behavioral skills to physicians, a great deal more was accomplished by this pilot study. Importantly, it became clear that the course of training was salient to the needs and interests of Family Practitioners. The Residents' committed participation in the seminars led to highly stimulating discussions and much learning by the trainees and instructors alike. There were also some specific conclusions about the pilot experience: (a) the classroom time spent was insufficient to allow the physicians to develop behavioral skills to the level of competency which both they and their trainers sought; (b) experience in the application of techniques was reported to be more useful than theoretical discussions; (c) the absence of supervised clinical practice was regretted; and (d) the need to clarify expected limitations on the capacity of these future Family Practitioners to behaviorally assist their handicapped patients was determined. Finally, it was agreed that the training was valuable and that additional training in applied social learning approaches to treatment was desirable. Given these findings and their associated implications for future program development, plans emerged to progressively refine the training model under systematic, experimental conditions. The details of this proposed study are described below.

CURRENT RESEARCH PLANS

Subjects. As presently designed, third-year Residents in Family Practice will participate in the Project as experimental subjects. From the total pool of third-year Residents available at the time of the study's inception, a group of 6 or more will be trained during corresponding months of each of 3 successive years, for a minimum expected total N of 18 subjects. The exclusion of certain Residents from the training may be dictated by their required rotations through other medical services during any training period; the selection of subjects will be determined by this pragmatic consideration alone, based upon the prior scheduling of the Residents in a random fashion unrelated to the purposes of the research.

In recognition of the virtual absence for medical students of the kind of training herein proposed, the experimental sample may be assumed to be reasonably representative of the physician target population. While some prospective trainees may have been exposed superficially to behavioral science principles, naivete with regard to specific applications for assisting the handicapped is presupposed. On this basis, there seems an acceptable foundation for anticipating reasonable levels of generalizability of the study's findings.

Experimental Design. Each of 3 subject groups (Groups A, B, & C) will be evaluated at corresponding points during their training, at each of 4 trial intervals: pre-training; post-seminar training; post-consultation training; 1 year follow-up. Four dependent variables will be measured for every subject at each of trials 1 through 3; the dependent measures will assess the trainees' knowledge of social learning theory (V1), behavioral assessment skills (V2), behavioral intervention skills (V3), and self-reports of skill usage (V4). Due to the nature of the measures and anticipated limitations on access to the graduated trainees at trial 4 (1 year follow-up), data on only V1 and V4 will be collected at trial 4 for Groups A & B. One year follow-up for Group C is not planned, as this extends beyond the Project's 3-year scope. The design is diagrammed in Figure 1.

Insert Figure 1 about here

Procedures. Evaluation and consumer feedback from the pilot study have resulted in revision of the instructional plans. While maintaining the general orientation and focus of the pilot training model, the present training paradigm reflects these alterations: the 6 classroom seminars have been extended from 1-1/2 to 2-1/2 hours each, changing total class time from 9 to 15 hours; the curriculum areas regarding technique application, alternate

		TRIALS							
		1. Pre-Test		2. Post-Seminar		3. Post-Consultation		4. One Year Follow-Up[a]	
GROUPS	Group A (Year I)	V1	V2	V1	V2	V1	V2	V1	V4
		V3	V4	V3	V4	V3	V4		
	Group B (Year II)	V1	V2	V1	V2	V1	V2	V1	V4
		V3	V4	V3	V4	V3	V4		
	Group C (Year III)	V1	V2	V1	V2	V1	V2		
		V3	V4	V3	V4	V3	V4		

NOTE: Cell entries denote dependent variables to be measured, as follows:

V1 = Knowledge of Theory
V2 = Assessment Skill
V3 = Intervention Skill
V4 = Skill Usage

[a]Access to subjects will limit Follow-up to measures of V1 & V4; one year Follow-up for Group C extends beyond the Project's 3-year scope.

Figure 1. Experimental Design

community resources, and future performance and competency expectations have been strengthened; and 3 hours for each trainee of individual consultation and clinical supervision have been included.

For each group of subjects, the program begins with the establishment of their pre-training skill levels as assessed by their performance on the series of competency-based dependent measures. The Residents will then participate in the 6 weekly classroom seminars, conducted by a team of behavioral specialists independent of the medical school setting. The teaching approach involves a high intensity combination of didactic and experiential methods, employing a multi-media format of instruction. As in the pilot study, content will emphasize the development of socialization and self-management skills for handicapped youngsters who have primarily developmental or behavioral/emotional disorders.

Upon completion of the classroom training and the post-seminar skill evaluation, each Resident will then receive 3 hours of observation and feedback during clinical visits with handicapped children and their families. In this way, the trainees may continue to enhance those competencies addressed during the seminars. The clinical supervisors will utilize a "Case Conference" model to teach the following skills: (1) identifying the learned behavioral components of the handicapping conditions presented by

their patients; (2) contingency analysis; and (3) treatment planning. Implementation of devised intervention strategies may involve the trainees in behavioral parent counseling, the construction and monitoring of behavioral programs, data review and analysis, the modeling of parenting skills, and the direct application of behavior management techniques. These activities will be supervised by Project staff, who will offer immediate feedback and suggestions. As appropriate, the supervisors may direct the trainees in practicing a particular skill, may model a specific approach with an actual patient, or may use videotapes of the trainees' sessions to assist in isolating material for discussion. Follow-up readings, exercises, or discussions may be included where relevant. The post-consultation skill evaluation will be completed after this training phase, with repeated measurement scheduled for one year later.

Measures. Although approaches to evaluation of physician performance have received some attention in the recent literature [40], little is available which directly assesses competency development in areas central to this research. For this reason, measures were designed to sample the trainees' acquisition of skills within the 3 specific competency areas which have been identified.

The first measure, used to assess the trainees' knowledge of social learning theory (V1), is a straightforward, objectively scorable written examination. The second

measure, rather more complex, was constructed to allow for monitoring of the progressive development of the trainees' behavioral assessment skills (V2). This device requires each subject to role-play a diagnostic interview with a trained research assistant acting as a "patient." At the close of this 10-minute exchange, the subject records the information and diagnostic inferences which have been drawn from the interview on a structured outline form. These responses are then systematically rated against a predetermined scoring key for accuracy and specificity. Informal piloting of this measure produced inter-rater agreements generally exceeding 90%.

The third measure taps the trainees' development of behavioral intervention skills (V3). The evaluative task involves presenting each subject with a brief, oral description of a series of problem situations concerning handicapped children and their families. For each situation, the subject is asked to consider that medical components of the apparent disability have been ruled out or effectively treated. Given this premise, the subject then verbally shares with a trained research assistant a precise, detailed account of all actions he might take or specific things that he might say to intervene in the situation. These responses are then scored in a manner similar to that for V2, this method likewise having achieved inter-rater agreement generally exceeding 90% in previous pilot testing.

Jointly, the first 3 measures work to assess the trainees' development of necessary competencies as a function of the training experiences. While space limitations do not permit reporting the details necessary to establish these measures' claims to validity, it is important to note that considerable attention has been given to plans for developing reliable parallel forms of the instruments, counter-balanced designs, experimenter "blind" scoring procedures, and a host of other experimental strategies to minimize invalidating "threats" [41]. Also, in recognition that the systems discussed above pose but a single method for analyzing the complex of information available from the tasks for V2 and V3, each of these behavior samples by the subjects will be videotaped; in this way, the raw data may be preserved and later subjected to any of a variety of analytic techniques.

The remaining measure (V4) is an objectively scorable, self-report questionnaire which assesses the physicians' perceptions of the ways they are caring for their handicapped patients in everyday practice. Expectations of responsible and honest self-report will be joined with encouragements to the trainees to be blunt in describing the actual frequencies with which they are using particular behavioral skills and finding these of value. This information is seen as critical for demonstrating the genuine

impact and potential of the Project in regard to its stated goals.

Finally, in addition to the empirical measures described above, informal feedback will be solicited from the trainees and randomly selected clinic patients throughout the course of the Project. Such an exchange of ideas is essential for directing the progressive development of the Project's experimental training model and for assuring the continued awareness by the investigators of the needs of the handicapped which interface with medical practice.

Evaluation. At the close of the Project's 3 years, its overall impact will be formally established by statistical analysis of the complete data matrix, as displayed in Figure 1. A Single Classification Analysis of Variance (ANOVA) will be applied to each dependent variable as collected on the 3 groups of subjects at each of the 4 trial intervals (cf. [42]). Significant results will be explored by the Neuman-Keuls procedure [42], allowing for the specification of particular effects between groups and within trials. It is generally expected that the subjects will manifest significant gains on each of the measures from both the first and second to third trial intervals (H_1: Trial 1 < 2 < 3). Since a great many factors may confound expectations for performance at the time of one-year follow-up (trial 4), it is difficult to anticipate the degree to which treatment effects may be maintained.

However, minimally acceptable evidence for the Project's lasting impact leads us to posit that the following criterion be met -H_2: Trial 1 < 4.

In addition to this overall impact assessment, an ongoing process of informal review will be run concurrent with the Project's operation. Relying heavily on evolving trends in the data, consumer feedback, and the critiques or impressions of Project staff, the need for revisions in the experimental curriculum or training process will be identified; as possible, appropriate changes will be incorporated and systematically examined during the second and third training cycles. To the extent that such alterations lead to actual improvements in the instructional model between the training years, some between-group differences might be expected to emerge. However, given the limited n per group and the relative weakness of possible instructional improvements compared with some initially potent treatment, statistical evidence for between-group differences appears unlikely. But such trends as may exist between the groups, as well as any interaction effects which are discerned, will be considered in relation to their possible implications for the Project's effectiveness and utility.

Dissemination. While it is anticipated that the Project's graduates will directly provide some more valuable treatment services to their handicapped child patients, the

numbers of needy children who could profit from the expertise of behaviorally trained physicians dictates plans to multiply the Project's effects throughout other sectors of the medical community. To accomplish this aim, it will first be necessary to educate professionals regarding the Project's rationale, its goals and potential benefits. This objective will be approached through the continuing preparation and presentation of papers and workshops to interested groups.

While the promotion of the Project and its instructional model is being accelerated, concerted efforts will be applied to preparing a portable training package. Based upon evaluation and consumer feedback from the first year's training experiences, work will commence on writing and organizing a reusable training manual. As currently conceived, the manual will include a detailed course curriculum, a corresponding instructor's guide, and explicit directions for facilitating classroom exercises, tasks, and assignments. In addition, a section of the manual will describe effective procedures for providing individualized supervision and clinical consultation to medical trainees. As part of the training package, the manual will be supplemented by standardized audio and/or videotape cassettes, providing study models of appropriate assessment and intervention approaches; the audiovisual aids may also provide scenarios to support experiential exercises. Concrete

methods to evaluate the training will be provided with the other materials, and their use strongly encouraged. The measures, likely similar in kind to those included in the present study, will be streamlined for ease in implementation to the extent that reliability and validity can be maintained.

As progress is achieved in the promotion of the instructional model and in the development of the portable training package, dissemination activities will turn to focus upon arrangements to furnish the packet to other training sites.

DISCUSSION

There is a manifest need for many more behaviorally trained personnel to assist in the education and treatment of handicapped children and their families. In recognition of this fact, the important contribution of the Physician Impact Project is the population which it seeks to train: Family Physicians. This group is sociologically focal in encountering the demands for service to the handicapped, and their broad orientation to diagnosis and intervention provides them great opportunity to assist in the early identification and remediation of a diversity of handicapping conditions.

In planning to train physicans to serve effectively in this capacity, careful consideration must be given to

the nature of their prospective roles. Clearly, given the substantive breadth of traditional medical education required to prepare physicians to master essential medical competencies, it is unrealistic to expect these practitioners to also perform as independent behavioral specialists. However, to the extent that Family Physicans are called upon to meet the needs of handicapped children, their abilities to wisely dispense constructive advice and support behavioral intervention programs must be strengthened. A central feature of the Physician Impact Project is its focus upon examining with the trainees the nature of the pragmatic restraints on their expected professional roles as behaviorally trained personnel. Equally as important, criteria for determining when to refer youngsters to alternate community resources are discussed, avenues of access to appropriate programs or agencies are detailed, and the value of consultation with behavioral experts is stressed. At this stage in the Project's development, no precise understanding of the training scope needed to produce maximally efficient graduates has yet been generated. It is intended that the fluid experimental approach employed by the Project for researching this question, which involves the testing and subsequent revision of discrete training components, will allow for a meaningful and viable model to evolve.

The integration of behavioral science training into established medical curricula is felt to be a desirable goal. The Project's plans to develop an effective, validated and portable training package will hopefully foster the implementation of behavioral training activities at a number of medical sites. Although direct attempts to stimulate training innovations within medical school settings may face possible resistances, it is believed that an available set of training tools with demonstrated utility should prove easier for medical educators to endorse than would be some set of a priori assumptions about medical training needs unattended by a functional methodology. When joined with the established interest and need within the medical community for this type of training package, it is expected that dissemination efforts may lead to the training of a great many other Family Practitioners. In addition, as the behavioral skills that are emphasized by the Project (such as behavior management, skill teaching, and parent counseling strategies) relate directly to the needs of a multiplicity of other medical personnel (e.g., pediatricians, general practitioners, nurses, etc.), a properly developed packet would have broad utility in diverse medical settings. With the aid of the instructional materials to be provided, it is likely that the packet could be effectively implemented at other facilities by any

individual with a reasonably sound background in behavior science.

The central anticipated benefit of the Physician Impact Project is its promise for augmenting the number of consulting professionals whose routine contacts with handicapped children may be meaningfully enhanced by virtue of their behavioral skills. While alternate models for achieving this goal still need to be generated and explored, it is hoped that results from this current research may contribute to subsequent efforts geared to meeting the recognized needs of handicapped children and their families.

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